440 FIRST STREET

YEMI A. OSITELU | STRUCTURAL OPTION

ADVISOR: **DR. ALY SAID**

GENERAL DESCRIPTION

LOCATION	**WASHINGTON, D.C.**
OCCUPANCY	**OFFICE/ RETAIL**
SIZE	**141,929 SQUARE FT.**
NUMBER OF STORIES	**11 (ABOVE GRADE)**
ACTUAL COST INFO.	**$20,000,000 (RENO.)**

PROJECT TEAM

NEW CONSTRUCTION

OWNER	**FP FIRST STREET, LLC**
GENERAL CONTRACTOR	**SIGAL CONSTRUCTION**
ARCHITECT	**FOX ARCHITECTS**
CIVIL ENGINEER	**VIKA**
STRUCTURAL ENGINEER	**RGA**
MEP ENGINEER	**VANDERWEIL**
LIGHTING CONSULTANT	**C.M KLING & ASSOC.**
SPECS. WRITER	**BETHEL SPECS.**
LEED CONSULTANT	**LORAX**
CODE CONSULTANT	**AON RISK SOLUTIONS**

EXISTING CONSTRUCTION

ARCHITECT	**VLASTMIL KOUBEK, AIA**
STRUCTURAL ENGINEER	**BASKAM & JURCZYK**
MECHANICAL & ELECTRICAL	**THE OFFICE OF LEE KENDRICK**

ARCHITECTURE

440 First Street, NW, is located between D and E Streets in downtown Washington, D.C. The existing 8-story building was constructed in 1982 and renovation was initiated in 2012. It has 10 stories + a mechanical penthouse, and there are two existing below grade parking garages, which were repaired and utilized as a valet parking facility. The new façade is a combined glass-and-metal curtain wall system, which allows for outstanding views and more importantly, natural daylighting.

STRUCTURAL SYSTEM

FRAMING SYSTEM

EXISTING ***Cast-in-place concrete with two-way structural concrete slabs and reinforced concrete columns and beams.***

NEW ***Composite steel framing with 5 1/4" slabs***

LATERAL SYSTEM

EXISTING ***Slab-Column Concrete Frames***

NEW ***Steel Moment Frames***

FOUNDATION

Walls and columns are supported by spread footings.

MECHANICAL SYSTEM

During the renovation of 440 First Street, the primary mechanical (DOAS) systems were replaced and resulted in a 25% reduction in energy usage. It consists of 3 mechanical rooms housed in the penthouse and 2 cooling towers on the penthouse roof. Openings were created in the steel beams and girders for ductwork and piping due to small ceiling heights

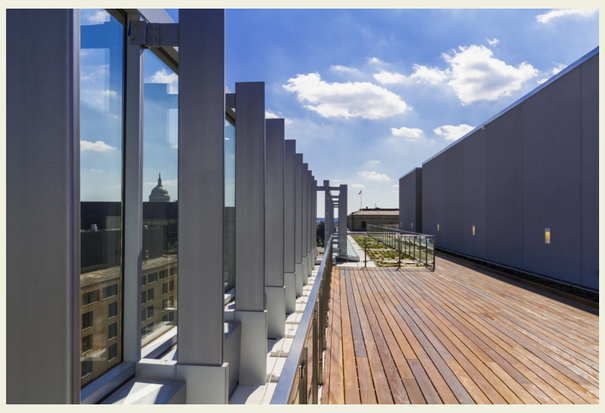
SUSTAINABILITY

- Majority of the building 's structural elements will be reused
- Green Roof will have local plants that require minimal watering and also reduces storm water overflow and minimizes "heat island" effect
- Recycled materials are used and are obtained regionally
- The building has achieved LEED Platinum Certification

LIGHTING/ELECTRICAL SYSYTEM

The curtain wall and the many windows in the façade provide the building with natural daylighting, improving energy efficiency.

The interiors are well lit with LED fixtures and other various energy efficient light fixtures



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